

REMARKS

This application has been reviewed in light of the Office Action dated February 27, 2006. Claims 1-3 and 5-18 are presented for examination, of which Claims 1, 5, 10 and 16 are in independent form. Claims 10 and 16 have been amended as to matters of form. No change in scope is either intended or believed effected by these changes. Favorable reconsideration is requested.

The specification has been amended to conform the Summary of Invention section to the amended claims.

Claims 1-3 and 5-18 were rejected under 35 U.S.C. § 102(b) as being anticipated by Yooshifumi Kitamura and Fumio Kishino, Consolidated Manipulation of Virtual and Real Objects, September 1997, Proceedings of the ACM Symposium on Virtual Reality Software and Technology, pp. 133-138 (Kitamura).

Claim 10 is directed to an information processing method for changing the position and orientation of a virtual object in mixed reality space obtained by combining a real image and a virtual image. The method includes the steps of obtaining a constraining shape from a plurality of positions in real space designated by a user using an operating unit capable of obtaining three-dimensional positional information, changing the position and orientation of the virtual object according to instructions from the user, based on the obtained constraining shape as constraint condition, and combining an image of the virtual object generated according to the changed position and orientation, and the real image, to obtain a mixed reality image.

Among other notable features of Claim 10 are (1) obtaining a constraining shape from a plurality of positions in real space designated by a user using an operating unit

capable of obtaining three-dimensional positional information, and (2) changing the position and orientation of the virtual object according to instructions from the user, based on the obtained constraining shape as constraint condition. By virtue of the structure recited in Claim 10, the dynamic creating of constraining shapes in a compounded real space is enabled, as well as easy operating of virtual objects using constraining shapes even where constraining shapes have not been registered beforehand. Further, a constraining shape can be created in accordance with the instruction of a user who manipulates the virtual object and it becomes possible to create the constraining shape dynamically by using this structure.

Kitamura relates to a method of manipulating virtual and real objections in mixed reality by employing a limited number of physical laws selected and simulated for virtual objects and introducing limitations on the physical laws for real objects. Kitamura discusses manipulating the virtual object in mixed reality (Fig. 2) using a six degrees of freedom (DOF) tracker (Kitamura, p. 135). “The shape of the real object is known in advance” and the “DOF of the virtual object’s motion is dynamically constrained on the surface of the collided objects.” (Kitamura, p. 135). Kitamura also discusses detecting object collision using a method of real-time colliding face detection of polydedral objects with complicated shapes. However, Applicants have found nothing in Kitamura that would teach or suggest “obtaining a constraining shape from a plurality of positions in real space designated by a user using an operating unit capable of obtaining three-dimensional positional information” or “changing the position and orientation of the virtual object according to instructions from the user, based on the obtained constraining shape as constraint condition,” as recited in Claim 10 (emphasis added). In contrast, Kitamura discusses that, the constraining shape as constraint condition is calculated based on the geometric

model of the object which is kept in advance.

A review of the other art of record has failed to reveal anything which, in Applicant's opinion, would remedy the deficiencies of the art discussed above, as a reference against Claim 10.

Independent Claims 1, 5 and 16 recite features similar to those discussed above with respect to Claim 10 and, therefore, are also believed to be patentable over Kitamura for the reasons discussed above.

The other claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and early passage to issue of the present application.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,

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